TG Legacy Series

DESCRIPTION

CP Clare's TG Legacy Series of two electrode sparkgaps excel in applications that require the efficient transfer of high voltage, high energy pulses and DC overvoltage protection for magnetrons, diodes, capacitors, etc. The TG Legacy Series also includes three electrode triggered sparkgaps (cold cathode thyratrons) for switching high levels of stored energy in fractions of a microsecond, on command, using low energy control pulses.

FEATURES

- Tight DC breakdown voltage tolerance (± 10%)
- Long-life tungsten or molybdenum electrodes
- Rugged ceramic-to-metal or glass-to-metal construction

APPLICATIONS

- Test equipment
- Video displays
- Pulse generators
- Medical electronics

VOLTAGE RANGES

Series	DC Breakdown Voltage	Units
TG Two Electrode	0.345 - 60.0	kV
TG Three Electrode	1.0 - 27.5	kV

(See detailed specifications for more data. Contact CP Clare for TG and XG part numbers or for other requirements not listed.)

Two Electrode High-Energy Spark Gaps

SPECIFICATIONS

All characteristics at 25˚C.

PART NUMBER	DC BREAKDOWN VOLTAGE (KV ± 10%)	INITIAL PULSE BREAKDOWN VOLTAGE (KV)[3]	REPETITIVE PULSE BREAKDOWN VOLTAGE (KV)[3]	PACKAGE OUTLINE	DIMENSION A (INCHES)	DIMENSION B (INCHES)	DIMENSION C (INCHES)
TG-6	2.50	—	—	1	0.620 max	0.455 ± 0.031	0.188 max
TG-8[1]	2.50	—	—	1	0.620 max	1.000 ± 0.031	0.125 max
TG-9	3.00	—	—	1	0.620 max	0.460 ± 0.031	0.188 max
TG-14	12.50	19.0 - 28.0	17.0 - 21.0	2	—	—	—
TG-15	3.00	—	—	1	0.620 max	1.000 ± 0.031	0.125 max
TG-16[1]	3.00	—	—	1	0.620 max	1.000 ± 0.031	0.125 max
TG-17	2.60	—	—	1	0.620 max	0.455 ± 0.031	0.188 max
TG-19[2]	2.20 ± 0.20	—	—	1	0.620 max	0.455 ± 0.031	0.275 ± .07
TG-20A	21.00	17.0 - 24.0	—	7	2.250 ± 0.125	—	—
TG-22	1.00	—	—	1	0.620 max	0.435 ± .031	0.188 max
TG-24	15.50	35.5 max	—	2	—	—	—
TG-25	0.40	—	—	1	0.600 ± .030	1.100 ± .031	0.250 max
TG-26A	0.75	—	—	2	—	—	—
TG-27A	1.00	—	—	2	—	—	—
TG-28A	1.25	—	—	2	—	—	—
TG-29	1.50	—	—	2	—	—	—
TG-30	2.00	—	—	2	—	—	—
TG-31	2.50	—	—	2	—	—	—
TG-32	3.00	—	—	2	—	—	—
TG-33	4.00	—	—	2	—	—	—
TG-34	5.00	—	—	2	—	—	—
TG-35	6.00	—	—	2	—	—	—
TG-36	8.00	—	—	2	—	—	—
TG-37	10.00	—	—	2	—	—	—
TG-38	12.50	—	—	2	—	—	—
TG-39	15.00	—	—	2	—	—	—
TG-40	17.50	—	—	2	—	—	—
TG-41A	0.75	—	—	3	—	—	—
TG-42A	1.00	—	—	3	—	—	—
TG-43A	1.25	—	—	3	—	—	—
TG-44	1.50	—	—	3	—	—	—
TG-45	2.00	—	—	3	—	—	—
TG-46	2.50	—	—	3	—	—	—
TG-47	3.00	—	—	3	—	—	—
TG-48	4.00	—	—	3	—	—	—
TG-49	5.00	—	—	3	—	—	—
TG-50	6.00	—	—	3	—	—	—
TG-51	8.00	—	—	3	—	—	—
TG-52	10.00	—	—	3	—	—	—
TG-53	12.50	—	—	3	—	—	—
TG-54	15.00	—	—	3	—	—	—
TG-55	17.50	—	—	3	—	—	—
TG-56	20.00	—	—	4	3.750 ± .125	—	—
TG-57	25.00	—	—	4	3.750 ± .125	—	—
TG-58	30.00	—	—	4	4.000 ± .188	—	—
TG-59	40.00	—	—	4	4.250 ± .188	—	—
TG-60	50.00	—	—	4	4.500 ± .188	—	—

[1] 6-32 tapped hole in non-tubulated end.

[2] Identical tubulation on both ends.

[3] The voltage level at which the spark discharge occurs when a unipolarity pulse train is applied to the gap. Typically, the pulse repetition rate is 400 pps (pulses/second) with a rise time of 0.3 μs and a pulse width of 0.5 μs. The "initial" range specifies at what increasing voltage the gap begins to fire and the "rep" range specifies at what decreasing voltage the gap ceases to fire repetitively.

Two Electrode High-Energy Spark Gaps

SPECIFICATIONS

All characteristics at 25˚C.

PART NUMBER	DC BREAKDOWN VOLTAGE (KV ± 10%)	INITIAL PULSE BREAKDOWN VOLTAGE (KV)[3]	REPETITIVE PULSE BREAKDOWN VOLTAGE (KV)[3]	PACKAGE OUTLINE	DIMENSION A (INCHES)	DIMENSION B (INCHES)	DIMENSION C (INCHES)
TG-61	0.75	—	—	5	0.770 ± .062	0.310 ± .020	0.520 ± .022
TG-62	1.00	—	—	5	0.770 ± .062	0.310 ± .020	0.520 ± .022
TG-63	1.25	—	—	5	0.770 ± .062	0.310 ± .020	0.520 ± .022
TG-64	1.50	—	—	5	0.770 ± .062	0.310 ± .020	0.520 ± .022
TG-65	2.00	—	—	5	0.770 ± .062	0.310 ± .020	0.520 ± .022
TG-66	2.50	—	—	5	0.790 ± .062	0.310 ± .020	0.540 ± .022
TG-67	3.00	—	—	5	0.790 ± .062	0.310 ± .020	0.540 ± .022
TG-68	4.00	—	—	5	0.820 ± .062	0.340 ± .020	0.570 ± .022
TG-69	5.00	—	—	5	0.820 ± .062	0.340 ± .020	0.570 ± .022
TG-70	6.00	—	—	5	0.820 ± .062	0.340 ± .020	0.570 ± .022
TG-71	8.00	—	—	5	0.860 ± .062	0.380 ± .020	0.610 ± .022
TG-72	10.00	—	—	5	0.860 ± .062	0.380 ± .020	0.610 ± .022
TG-73	12.50	—	—	5	0.965 ± .062	0.490 ± .020	0.715 ± .022
TG-74	15.00	—	—	5	0.965 ± .062	0.490 ± .020	0.715 ± .022
TG-75	17.50	—	—	5	0.965 ± .062	0.490 ± .020	0.715 ± .022
TG-76	0.40 ± .05	—	—	1	0.600 ± .030	0.494 ± .031	0.250 max
TG-77	-	9.0 - 11.5	9.0 - 11.5	special	—	—	—
TG-78	1.00	—	—	1A	0.620 max	0.425 ± .031	—
TG-79	2.50	—	—	2	—	—	—
TG-82	15.00	15.0 - 19.0	13.0 - 18.0	7A	0.950 ± .050	—	—
TG-83	16.50	16.0 - 22.0[4]	16.0 - 22.0[4]	2	—	—	—
TG-84	30.00	31.0 - 43.0[4]	31.0 - 43.0[4]	4	4.000 ± .188	—	—
TG-85	15.00	9.0 - 11.5	9.0 - 11.5	special	—	—	—
TG-86	0.60	—	—	1A	0.620 max	0.537 ± .031	—
TG-87	0.80	—	—	1A	0.620 max	0.537 ± .031	—
TG-89[2]	2.90	—	—	1	0.620 max	0.460 ± .031	0.188 max
TG-90	20.00	17.0 - 24.0	—	special	—	—	—
TG-98	0.345 ± .045	—	—	3A	—	—	—
TG-99	2.75 ± 0.25	—	—	2	—	—	—
TG-100	38.00	—	—	4	4.000 ± .188	0.440 ± .031	0.188 max
TG-102	1.25	—	—	1A	0.620 max	0.440 ± .031	0.188 max
TG-103	1.50	—	—	1A	0.620 max	0.445 ± .031	0.188 max
TG-104	2.00	—	—	1A	0.620 max	0.445 ± .031	0.188 max
TG-105	2.50	—	—	1A	0.620 max	0.445 ± .031	0.188 max
TG-106	3.00	—	—	1A	0.620 max	0.487 ± .031	0.188 max
TG-107	3.50	—	—	1A	0.620 max	0.487 ± .031	0.188 max
TG-108	4.00	—	—	1A	0.620 max	0.487 ± .031	0.188 max
TG-109	5.00	—	—	1A	0.620 max	0.487 ± .031	0.188 max
TG-110	0.40 ± .05	—	—	1A	0.620 max	—	—
TG-112	0.20 ± .10	—	—	1	0.620 max	0.455 ± .031	0.275 ± .075
TG-115	13.00 ± 1.00	—	—	3	—	—	—
TG-116[6]	25.00	—	—	4A	3.750 ± .125	—	—
TG-117	21.00	17.0 - 24.0	—	7	2.000 ± .125	—	—
TG-118	21.50	16.0 - 22.0	—	5	0.965 ± .062	0.490 ± .020	0.715 ± .022
TG-119	45.00	—	—	4	4.250 ± .188	—	—
TG-120	8.00	7.4 - 8.7	—	5	0.860 ± .062	0.380 ± .020	0.610 ± .022

[1] 6-32 tapped hole in non-tubulated end.

[2] Identical tubulation on both ends.

[3] The voltage level at which the spark discharge occurs when a unipolarity pulse train is applied to the gap. Typically, the pulse repetition rate is 400 pps (pulses/second) with a rise time of 0.3 µs and a pulse width of 0.5 µs. The "initial" range specifies at what increasing voltage the gap begins to fire and the "rep" range specifies at what decreasing voltage the gap ceases to fire repetitively.

[4] Pulse repetition rate is 1500pps instead of the standard 400pps.

[5] Though outlines 2, 3, and 3A are identical, the electrode materials and configurations vary internally.

[6] Though outlines 4 and 4A are identical, gaps with outline 4A have heavier internal construction to withstand more severe shock and vibration.

Two Electrode High-Energy Spark Gaps

SPECIFICATIONS

All characteristics at 25˚C.

PART NUMBER	DC BREAKDOWN VOLTAGE (KV ± 10%)	INITIAL PULSE BREAKDOWN VOLTAGE (KV)[3]	REPETITIVE PULSE BREAKDOWN VOLTAGE (KV)[3]	PACKAGE OUTLINE	DIMENSION A (INCHES)	DIMENSION B (INCHES)	DIMENSION C (INCHES)
TG-131	30.00	33.0	25.0	4A	4.000 ± .188	—	—
TG-132	2.00	—	—	special	—	—	—
TG-133	9.00	9.0 - 11.5	9.0 - 11.5	7A	0.192 ± .010	—	—
TG-135	2.00	—	—	special	—	—	—
TG-139	0.50	—	—	1A	0.487 ± .031	—	—
TG-140	0.60	—	—	3A	—	—	—
TG-148	6.00	7.5	6.0	special	—	—	—
TG-149	2.00	—	—	9	0.620 max	0.219 max	—
TG-152	0.50	—	—	special	—	—	—
TG-153	0.38 ± .02	—	—	1A	0.487 ± .031	—	—
TG-155	1.40	—	—	2	—	—	—
TG-156	2.625 ± 0.125	—	—	1	0.620 max	1.000 ± .031	0.188 max
TG-157	1.20	—	—	9	0.515 max	0.125 max	—
TG-162	21.00 ± 1.00	—	—	4	3.750 ± .125	—	
TG-163	31.50 ± 3.00	—	—	4	4.000 ± .188	—	—
TG-164	2.20	—	—	9	0.620 max	0.219nom	
TG-166	0.40	—	—	9	0.515 max	0.125 max	—
TG-167	0.60	—	—	9	0.515 max	0.125 max	—
TG-168	0.80	—	—	9	0.515 max	0.125 max	—
TG-169	1.00	—	—	9	0.515 max	0.125 max	—
TG-170	2.50	—	—	9	0.620 max	0.219 max	—
TG-171	3.00	—	—	9	0.620 max	0.219 max	—
TG-172	3.50	—	—	9	0.620 max	0.219 max	—
TG-173	4.00	—	—	9	0.620 max	0.219 max	—
TG-174	5.00	—	—	9	0.620 max	0.219 max	—
TG-175	6.00	6.0 - 7.5	6.0 - 7.5	9	0.620 max	0.219 max	—
TG-176	6.00	—	—	7	2.250 ± 0.125	—	—
TG-183	35.00	—	—	4	4.000 ± .188	—	—
TG-184[5]	7.00	—	—	3A	—	—	—
TG-186	20.00	—	—	4	3.750 ± .125	—	—
TG-187	1.50	—	—	3	—	—	—
TG-188	0.60	—	—	1	0.620 max	1.000 ± .031 max	0.188 max
TG-189	0.50	—	—	9	0.515 max	0.125 nom	—
TG-191[2]	0.45	—	—	1	0.620 max	0.455 ± 0.031	0.275 ± 0.075
TG-192	31.00 ± 3.0	—	—	4	4.000 ± .188	—	—
TG-193	2.30	—	—	special	—	—	—
TG-194	60.00 ± 8.0	—	—	4	4.500 ± .188	—	—
TG-196	9.00	9.0 - 11.5	9.0 - 11.5	7A	0.500 ± 0.30	—	—
TG-197	18.375 ± 0.875	—	—	2	—	—	—
TG-198[1]	1.60	—	—	1	0.620 max	1.000 ± 0.031	0.125 max
TG-249	0.18 ± .05	—	—	1A	0.450 ± .031	—	—
TG-359	0.345 ± 0.45	—	—	special	—	—	—
TG-366A	14.00	—	—	special	—	—	—
TG-373	21.00	—	—	special	—	—	—
TG-375	20.5 - 24.0	—	—	4	4.000 ± .188	—	—
TG-376	14.8 - 18.15	—	—	4	4.000 ± .188	—	—

[1] 6-32 tapped hole in non-tubulated end.

[2] Identical tubulation on both ends.

[3] The voltage level at which the spark discharge occurs when a unipolarity pulse train is applied to the gap. Typically, the pulse repetition rate is 400 pps (pulses/second) with a rise time of 0.3 µs and a pulse width of 0.5 µs. The "initial" range specifies at what increasing voltage the gap begins to fire and the "rep" range specifies at what decreasing voltage the gap ceases to fire repetitively.

[4] Pulse repetition rate is 1500pps instead of the standard 400pps.

[5] Though outlines 2, 3, and 3A are identical, the electrode materials and configurations vary internally.

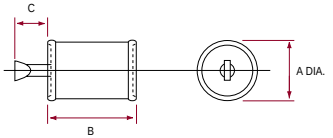
[6] Though outlines 4 and 4A are identical, gaps with outline 4A have heavier internal construction to withstand more severe shock and vibration.

Two Electrode High-Energy Spark Gaps

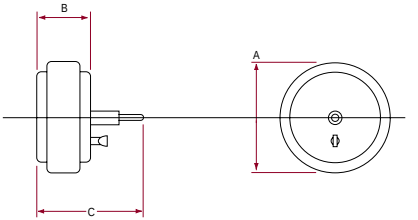
DIMENSIONS
mm
(inches)

MECHANICAL DIMENSIONS

TG LEGACY – 1



TG LEGACY 1-A



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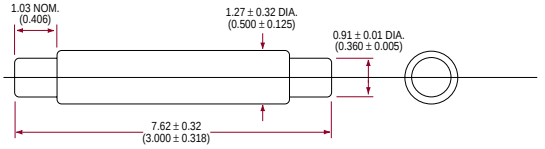

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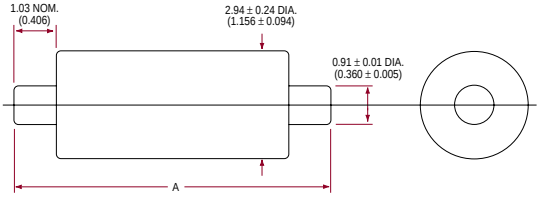

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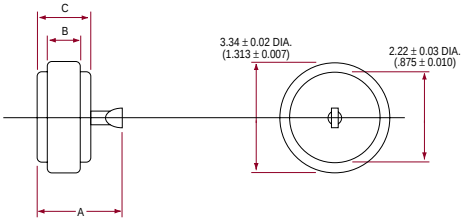

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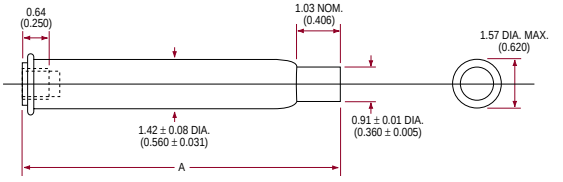

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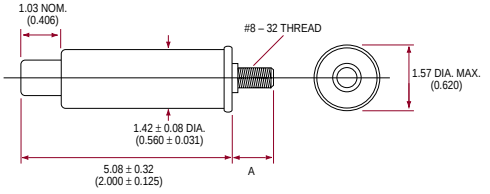

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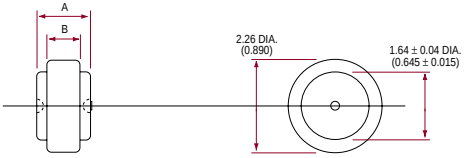


Three Electrode High-Energy Spark Gaps

SPECIFICATIONS

All characteristics at 25˚C.

PART NUMBER	APPLIED DC VOLTAGE RANGE	MAIN STATIC DC BREAKDOWN (kV) KV (±10%)	PEAK CURRENT (KA)[7]	DELAY TIME (µS)[8]	PACKAGE OUTLINE	DIMENSION A (INCHES)	DIMENSION B (INCHES)	DIMENSION C (INCHES
TG-7	1.3 - 4.0	5.0	15.0	0.1	I-A	2.427 nom	0.228 max	1.500 max
TG-88	1.3 - 4.0	5.0	15.0	0.1	I-B	2.427 nom	0.228 max	2.015 max
TG-114	2.5 - 8.0	10.0	15.0	0.1	I-B	2.427 nom	0.228 max	2.015 max
TG-121	0.8 - 2.0	2.5	15.0	0.3	I-B/I-D	1.990 nom	0.228 max	1.450 max
TG-122	1.5 - 4.0	5.0	15.0	0.1	I-B/I-D	1.990 nom	0.228 max	1.450 max
TG-123	2.3 - 6.0	7.5	15.0	0.1	I-B/I-D	1.990 nom	0.228 max	1.450 max
TG-124	3.0 - 8.0	10.0	15.0	0.1	I-B/I-D	1.990 nom	0.228 max	1.450 max
TG-125	4.5 - 12.0	15.0	20.0	0.1	I-B/I-D	2.67	0.54	1.560
TG-126	6.0 - 16.0	20.0	20.0	0.1	I-B/I-D	2.67	0.54	1.560
TG-127	7.5 - 20.0	25.0	20.0	0.1	I-B/I-D	2.797 nom	0.540 max	2.051 max
TG-151	2.7 - 6.0	6.8	15.0	0.1	special	-	-	-
TG-177	0.6 - 1.9	2.5	10.0	0.3	III	1.625 max	0.520 ± .030	0.300 ± .025
TG-178	1.5 - 3.5	5.0	10.0	0.2	III	1.625 max	0.580 ± .030	0.340 ± .025
TG-179	3.0 - 8.0	10.0	10.0	0.1	III	1.719 max	0.620 ± .030	0.380 ± .025
TG-180	4.5 - 12.0	15.0	10.0	0.1	III	1.906 max	0.725 ± .030	0.490 ± .025
TG-181	5.3 - 14.0	17.5	10.0	0.1	III	1.906 max	0.725 ± .030	0.490 ± .025
TG-240	0.4 - 0.85	1.0	10.0	0.1	II	0.750 ± .063	-	-
TG-241	0.5 - 1.25	1.5	10.0	0.1	II	0.750 ± .063	-	-
TG-242	0.7 - 1.7	2.0	10.0	0.1	II	0.760 ± .063	-	-
TG-243	0.8 - 2.1	2.5	10.0	0.1	II	0.760 ± .063	-	-
TG-244	1.2 - 4.2	5.0	10.0	0.1	II	0.760 ± .063	-	-
TG-245	2.0 - 6.2	7.5	10.0	0.1	II	0.760 ± .063	-	-
TG-246	3.5 - 8.5	10.0	10.0	0.15	II	0.790 ± .063	-	-
TG-247	4.5 - 11.0	12.5	10.0	0.15	II	0.790 ± .063	-	-
TG-248	7.0 - 12.5	15.0	10.0	0.15	II	0.830 ± .063	-	-
TG-1208	8.3 - 22.2	25.0 - 30.0	20.0	0.1	I-B	2.797 nom	0.515 ± .020	2.051 max

[7] The peak current is a conservative maximum for an approximately triangular pulse with a 50µs half-width.

[8] Delay time is for Mode A operation when the applied voltage is 80% of the main static breakdown and the trigger pulse reaches 150% of the maximum trigger voltage.

ORDERING INFORMATION

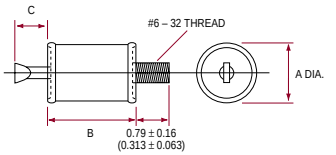
A complete part number is represented by the information in the Part Number column of the specification table.

Three Electrode High-Energy Spark Gaps

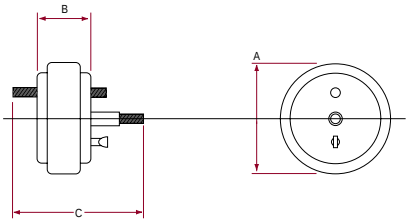
MECHANICAL DIMENSIONS

DIMENSIONS
mm
(inches)

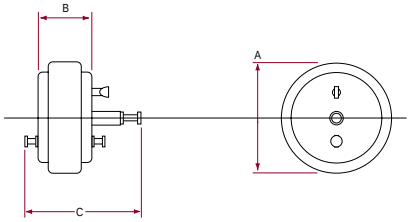
TG LEGACY – 1A



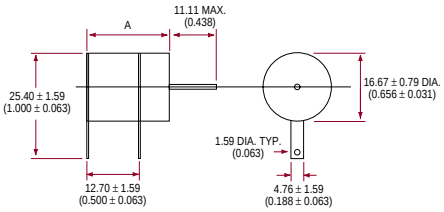
TG LEGACY 1-B



TG LEGACY 1-D



TG LEGACY II



TG LEGACY – OUTLINE III